Recommendation X.324

GENERAL ARRANGEMENTS FOR INTERWORKING BETWEEN PACKET SWITCHED

PUBLIC DATA NETWORKS (PSPDNs) AND PUBLIC MOBILE SYSTEMS

FOR THE PROVISION OF DATA TRANSMISSION SERVICES

(Melbourne, 1988)

The CCITT,

considering

(a) that Recommendation X.300 defines the general principles for interworking between public data networks, and between public data networks and other networks for the provision of data transmission services;

(b) that Recommendation X.301 defines the general arrangements for call control within a subnetwork and between subnetworks for the provision of data transmission services;

(c) that Recommendation X.302 defines the general arrangements for internal network utilities within a subnetwork and between subnetworks for the provision of data transmission services;

(d) that Recommendation X.75 already specifies detailed procedures applicable to call control between two public networks providing data transmission services;

(e) that Recommendation X.10 describes categories of access to PSPDNs for the provision of data transmission services;

(f) that Recommendation X.213 describes the network service definition for open systems interconnection for CCITT applications;

(g) that Recommendation X.305 describes functionalities of subnetworks relating to the support of the OSI network service;

(h) that the Q.1000 series of Recommendations define public land mobile networks (PLMNs);

(i) that the International Maritime Satellite Organization (INMARSAT) is currently operating a maritime satellite system designated as Standard-A providing voice, telex and data transmission services;

(j) that new INMARSAT standards designated Standard-B (digital replacement/upgrade for Standard-A), Standard-C (low data rate messaging system) and Aeronautical (digital voice and data transmission system for aircrafts) will be brought into service;

(k) the need for arrangements when interworking between mobile systems and PSPDNs for the provision of data transmission services,

unanimously recommends

that arrangements for the interworking between PSPDNs and mobile systems for the provision of data transmission services be in accordance with the principles and arrangements specified in this Recommendation.

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0 Introduction

This Recommendation is one of a set of Recommendations produced to facilitate considerations of interworking between networks. It is based on Recommendation X.300, which defines the general principles for interworking between public data networks, and between public data networks and other networks. Recommendation X.300 indicates in particular how collections of physical equipment can be represented as ÒsubnetworksÓ for consideration in interworking situations.

This Recommendation describes the interworking arrangements between mobile systems and PSPDNs for the provision of data transmission services. These interworking arrangements should include all the capabilities as described in Recommendation X.213.

1 Scope and field of application

The purpose of this Recommendation is to describe the general arrangements for the interworking between PSPDNs and mobile systems for the provision of data transmission services. These arrangements are applicable only to the interworking involving transmission capabilities and not to interworking involving communication capabilities as described in Recommendation X.300.

2 References

[1] Recommendation X.300

[2] Recommendation X.301

[3] Recommendation X.302

[4] Recommendation X.305

[5] Recommendation X.325

[6] Recommendation X.1

[7] Recommendation X.2

[8] Recommendation X.10

[9] Recommendation X.121

3 Definitions

This Recommendation makes use of the following terms defined in Recommendation X.300:

a) transmission capability,

b) communication capability,

c) subnetwork functionality,

d) data transmission service.

4 Abbreviations

CSPDN Circuit switched public data network

DTE Data terminal equipment

ISDN Integrated services digital network

PDN Public data network

PLMN Public land mobile network

PSPDN Packet switched public data network

PSTN Public switched telephone network

5 General aspects

This Recommendation, in describing interworking arrangements between two subnetworks for the provision of data transmission services, adheres to the general principles of Recommendation X.300. The environments of these two subnetworks are described in the following sections.

5.1 *PSPDN*

The PSPDN provides packet switched data transmission services as defined in Recommendations X.1 and X.2 for the provision of data transmission services, the PSPDN may be accessed by DTEs by the categories of access C and D as defined in Recommendation X.10. In addition, the PSPDN may also be accessed via other networks, i.e., PSTN (X.10 category L, P), CSPDN (X.10 category K, O), PSPDN (Recommendation X.75), ISDN (Recommendation X.325), or mobile systems (this Recommendation). Private networks access the PSPDN via X.10 category of access D.

5.2 *Public mobile system*

The public mobile system may either be a public land mobile network (PLMN) as defined in Recommendation Q.1001 on a mobile satellite system (MSS) such as the one operated by the International Maritime Satellite Organisation (INMARSAT).

The mobile system may provide packet switched data transmission services as defined in Recommendations X.1 and X.2.

In the context of this Recommendation, DTEs may access the mobile system by the categories of access C and D as defined in Recommendation X.10.

5.3 *Specific aspects of public mobile systems*

In addition to the basic functions of networks they share with other types of networks, public mobile systems have specific functions related to the mobility of their users accessing the system via mobile stations.

Mobile systems deal with the mobility of their users in one of two ways:

a) by requiring the calling user to specify one of a small number of zones as the location of the mobile user;

b) by maintaining a data base containing the current location of each mobile station (called a location register in Recommendation Q.1001) and arranging for the interconnected fixed network(s) to route calls to an appropriate access point to the public mobile system. With such a mechanism, the calling user need not know the current location of the called mobile user.

The first method (called designation method call routing to mobile users) is used in the public maritime mobile satellite system where the mobile station may be in one of three satellite regions. The second method (called non-designation method call routing to mobile users) is typified by systems conforming to the Q.1000 series of Recommendations.

5.4 *Organisation of X-series Recommendations related to interworking between PSPDNs and public mobile systems*

Since mobile systems fall into the two categories mentioned in ¤ 5.3, two sets of Recommendations are necessary to describe the associated interworking arrangements. The existing and planned structure of these Recommendations is given in Figure 1/X.324.

Figure 1/X.324 - T0702160-87

6 Specific interworking arrangements

For further study.

See also Recommendations X.351, X.352 for the public mobile satellite system.

7 International interworking

For further study.